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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/538,104	06/08/2005	Jens Pollmann-Retsch	DE020302	1362
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/538,104

Applicant(s)

POLLMANN-RETSCH ET AL.

Examiner

Ephrem Alemu

Art Unit

2821

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 September 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 26-66 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 26-66 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/CDC)
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 26-30, 32, 34-36 and 38-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirao et al. (US 6,709,111, previously cited by Examiner) in view of Billington et al. (US 6,588,907, previously cited by Examiner).

Re claims 29, 34, 35, 36, 38, 43, 44, 47, 49, 52, 55 and 56, Hirao discloses a lighting unit (i.e., projector) having a discharge lamp (i.e., lamp for backlight 7), an assembly comprising a lamp driver (6 which inherently include trigger circuit to ignite the discharge lamp), a cooling device (i.e., fan 36), at least one device (i.e., temperature sensor 2) for detecting at least one predetermined operating parameter of the discharge lamp (i.e., lamp for backlight 7), together with a control unit (i.e., microcomputer 1), the control unit (i.e., microcomputer 1) for controlling the lamp driver (6) and/or the cooling device (i.e., fan 5) at least during switching on of the lighting unit in such a way that there is no excursion from a predetermined range of the at least one operating parameter; wherein the lamp driver (6) and/or the cooling device (i.e., fan 5) being controllable by the control unit (i.e., microcontroller 1) as a function of the output signal of the at least one detected predetermined operating parameter of the discharge lamp (Figs. 1-4; Col. 2, line 12- Col. 3, line 35; Col. 4, lines 1- Col. 5, line 58); and the control unit effectuating operations comprising: at least one intermediate value (V1) for the cooling or the power to the

lamp or both, which intermediate value is between full on; at least one timing (T_c , T_0) relative to the actuation indication and associated with the intermediate value (V_1); and parameters for turning the cooling and power to the lamp full on, in accordance with whether the lamp is to be switched on (Figs. 1-4; Col. 2, line 12- Col. 3, line 35; Col. 4, lines 1- Col. 5, line 58).

Hirao control unit does not provide control signals to coordinate cooling and power to the lamp responsive to the actuation indication for switching off of the lamp.

In the same field of endeavor, Billington teaches of providing control signals to coordinate cooling and power to the lamp responsive to the actuation indication for switching off of the lamp for the purpose of increasing reliability of the projector and prolonging bulb life (Col. 4, lines 26-59).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the control circuit of Hirao by providing control signals to coordinate cooling and power to the lamp responsive to the actuation indication for switching off of the lamp as taught by Billington for no other reason than increasing reliability of the projector and prolonging bulb life as taught by Billington.

Re claims 30, 32 and 45, given Hirao's modified by Billington's lighting unit (i.e., projector), providing a switching schedule comprising predetermined stepwise adjustments (alternately adjusting) to control parameters of both the lamp driver and the cooling device in accordance with the lamp to be switched on or off would have been obvious because Hirao further discloses the controller (i.e., microcomputer 1) includes a memory (storage device 1a) for controlling both the lamp driver and the cooling device for maintaining a desired temperature responsive to the actuation indication for switching on of the lamp (Figs. 1-6; Col. 4, line 1- Col.

5, line 49); and Billington teaches of providing control signals to coordinate cooling and power to the lamp responsive to the actuation indication for switching off of the lamp for the purpose of increasing reliability of the projector and prolonging bulb life (Col. 4, lines 26-59).

Re claims 26, 27, 28 and 56, given Hirao's modified by Billington's lighting unit (i.e., projector) as discussed above in claims 29, 30 and 32, the method for preventing mechanical stress to a discharge vessel as claimed in claims 26, 27, 28 and 56 is inevitable.

3. Claims 33, 39-42, 48 and 53 rejected under 35 U.S.C. 103(a) as being unpatentable over Hirao et al. (US 6,709,111, previously cited by Examiner) in view of Billington et al. (US 6,588,907, previously cited by Examiner) as applied to claims 29, 38 and 52, above, and further in view of Miyamoto et al. (US 6,443,575, previously cited by Examiner).

Re claims 33, 39, 40, 41, 48, 53 and 54, Hirao's or Billington's does not mention about having a second sensor for detecting a parameter of the cooling device (i.e., fan) in addition to the at least one parameter of the lamp (i.e., temperature).

Miyamoto teaches of providing a second sensor (i.e., fan voltage sensor) for the purpose of controlling the power supplied to the cooling device (i.e., fan 6) (Fig. 8; Col. 4, lines 43-59).

Therefore, providing a sensor for detecting at least one other parameter of the cooling device as taught by Miyamoto in addition to the at least one parameter of the lamp for Hirao's modified by Billington's lighting unit (i.e., projector) would have been obvious to one having ordinary skill in the art for no other reason than controlling the temperature condition within the lamp unit based on the at least one operating condition of the cooling device (i.e., fan) and the at least one parameter of the lamp. Further, the operating parameter of the cooling device being velocity, pressure and/or volume of a gas stream directed onto the lamp would have been an

obvious design choice for no other reason than increasing reliability of the projector and prolonging lamp life.

Re claim 42, although, Hirao's or Billington's does not specifically mention the sensor for measuring the temperature being arranged on the discharge vessel for detecting the temperature of the wall of the discharge, arranging the temperature on the discharge vessel of the discharge lamp for detecting the temperature of the wall of a discharge vessel would have been an obvious design choice for no other reason than keeping the temperature of the lamp surface at a predetermined level.

4. Claims 31, 37, 46, 50 and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirao et al. (US 6,709,111, previously cited by Examiner) in view of Billington et al. (US 6,588,907, previously cited by Examiner) as applied to claims 29, 36, 44 and 49 above, and further in view of Parker (US 4,283,658, previously cited by Examiner).

Re claims 31, 37, 46, 50 and 51, Hirao's or Billington's does not disclose the control unit detects the lamp current and/or the lamp voltage and/or the lamp power via the trigger circuit, which is connected with the second input of the control unit.

In the same field of endeavor, Parker teaches of providing a sensor for sensing at least one electrical parameter (i.e., current, voltage or power) of the lamp for controlling a lamp driver (i.e., power supply 12 and/or a cooling device (i.e., fan 29) for the purpose of maintaining the operating point of a discharge lamp (Fig. 1; abstract; Col. 5, lines 3-27; Col. 6, lines 52-58).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the controller circuit of Hirao's modified by Billington's lighting unit (i.e., projector) by providing a sensor for sensing at least one electrical parameter

(i.e., current, voltage or power) of the lamp for the purpose of controlling the lamp at a desired temperature range.

5. Claims 57-66 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirao et al. (US 6,709,111, previously cited by Examiner) in view of Billington et al. (US 6,588,907, previously cited by Examiner) as applied to claims 29, 36, 44 and 49 above, and further in view of Pruett et al. (US 6,472,828, previously cited by Examiner).

Re claims 57, 58, 59, although, Hirao or Billington does not specifically states the stored switching schedule comprises stepwise and/or alternate values for power to the lamp and/or power to the cooling device, and timing, Hirao and Billington discloses microcontroller for storing such schedule.

In the same field of endeavor, Pruett discloses the stored switching schedule comprises stepwise and/or alternate values for power to the lamp and/or power to the cooling device, and timing for the purpose of controlling the temperature of the lamp (abstract; Col. 4, lines 29-63).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the controller circuit of Hirao's modified by Billington's lighting unit (i.e., projector) so that the stored switching schedule comprises stepwise and/or alternate values for power to the lamp and/or power to the cooling device and timing as taught by Pruett for the purpose of controlling the temperature of the lamp.

Re claim 59, Pruett further teaches the values relate to switching on the lamp.

Re claim 60, given Hirao's modified by Billington's further modified by Pruett the values being related to switching off the lamp would have been obvious since Billington teaches gradually decreasing power when turn off (Col. 4, lines 47-59).

Re claims 61 and 62, given Hirao's modified by Billington's further modified by Pruett the stored switching schedule being chosen responsive to sensed parameters of the lamp for no other reason than controlling the temperature of the lamp.

Re claims 63 and 64, given Hirao's modified by Billington's further modified by Pruett the control signals for coordinating cooling power to the lamp are provided responsive to stored timing values in order to heat up the lamp to its fill operating temperature.

Re claims 65 and 66, given Hirao's modified by Billington's further modified by Pruett the actuation indication signals switching of a lamp switch by a user (i.e., when the power is turned on and/or off) as taught by all the references.

Response to Arguments

6. Applicant's arguments with respect to claims 31, 33, 36, 37, 39-42, 48, 51 and 53 have been considered but are moot in view of the new grounds of rejection.

7. Applicant's arguments filed 9/10/08 have been fully considered but they are not persuasive. In response to applicant argument the coordination of power and cooling is responsive to an actuation indication for switching on or switching off the lamp, as claimed in claim 26 and 29, requires some kind of sensing of actuation of a switch is respectfully disagreed. As long as the coordination of power and cooling is performed either automatic or any other ways responsive to an actuation indication of switching on or switching off the lamp, then the claimed limitation has been met. In the instant case, Hirao discloses that feature in col. 5, lines 25-34 (i.e. the coordination of power and cooling is responsive to an actuation indication for switching on or switching off the lamp corresponds to the fan motor being set to minimum or being stopped). Furthermore, Billington in col. 3, lines 57-60 & col. 4, lines 51-52, discloses

gradually reducing power to the light so that the need for cool down is mitigated corresponds to the coordination of power and cooling is responsive to an actuation indication for switching on or switching off the lamp.

In response to Applicants' argument that the Examiner failed to make a prima face case against claims 27 and 32 is respectfully disagreed. Applicants' acknowledged in page 13, paragraph 1 of the remarks, Hirao shows only two stepwise and Billington also teaches gradually decreasing. Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a switching schedule comprising predetermined stepwise adjustments or alternately adjusting. The motivation to do that is to maintain a desired temperature responsive to the actuation indication for switching on or switching off of the lamp. Furthermore, Examiner interpretation of "gradually" implies "stepwise" not "continuous" as Applicants' implied in page 13, paragraph 1.

In response to Applicants' argument in page 13, last paragraph of the remarks that any adjustment in the references seems to be in accordance with the sensed values not in accordance with a stored value is respectfully disagreed. Billington clearly teaches most scenarios can be programmed into the control logic (Col. 4, lines 48-52). Thus the prima facie case of obviousness has been established.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ephrem Alemu whose telephone number is (571) 272-1818. The examiner can normally be reached on M-F 9:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Douglas W Owens can be reached on (571) 272-1662662. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

EA
12/08/08

/Douglas W Owens/
Supervisory Patent Examiner, Art Unit 2821
December 8, 2008